

SUPPORT FOR THE AMENDMENTS

Support for the amendment to Claim 1 is found on page 11, lines 5 to 9, and page 12, line 9, in the specification..

No new matter will be added to this application by entry of this amendment.

Claims 1-11 and 14-21 are active.

REMARKS/ARGUMENTS

The claimed invention is directed to a recording ink of cyan, yellow or magenta color, an ink cartridge, an inkjet recording apparatus and an inkjet recording process. The claimed invention provides cyan, yellow and magenta recording inks comprising: water, a wetting agent, a surfactant, and a colorant wherein the wetting agent comprises 3-methyl-1,3-butanediol and the colorant is a pigment or an aqueous dispersion of polymer fine particles containing a colorant. No such cyan, yellow or magenta inks are disclosed or suggested in the cited reference.

Applicants respectfully note that Claim 1 is herein amended to recite that the colorant is at least one of a pigment and an aqueous dispersion of polymer fine particles comprising a colorant.

Applicants wish to thank Examiner Shah for the useful and courteous discussion of this application with Applicants' U.S. representative on August 19, 2008. At that time, Applicants' U.S. representative pointed out that Ishibashi describes water-soluble dyes. Amendment to recite Claim 1 describing the colorant as a pigment or polymer fine particles containing a colorant was discussed. The following reiterates and expands upon that discussion.

The rejection of Claims 1, 6, 14-15, 19 and 21 under 35 U.S.C. 102(b) over Ishibashi et al. (U.S. 2004/0003754) is respectfully traversed.

Ishibashi neither discloses nor suggests a recording ink having a colorant which is a pigment or an aqueous dispersion of polymer fine particles containing a colorant as presently claimed.

Ishibashi describes an ink jet ink containing water, a water-soluble organic solvent and a water soluble anthrapyridone dye. Paragraph [0035] states:

“As a result of diligent investigation, the inventors of the present invention found that in an ink-jet ink comprising a water-soluble dye, using water and water-soluble solvents, the water soluble dye containing a compound represented by Formula (1) exhibited superiority in color image stability in ambient light.”

In contrast, the claimed invention is directed to water-insoluble colorants (Page 11, lines 9-12).

In view of the above, Applicants respectfully submit that the cited reference can neither anticipate nor render obvious the currently claimed invention. Accordingly, withdrawal of the rejection of Claims 1, 6, 14-15, 19 and 21 under 35 U.S.C. 102(b) over Ishibashi is respectfully requested.

The rejection of Claims 2-3, 11, 16-17 and 20 under 35 U.S.C. 103(a) over Ishibashi in view of Takashi (JP 11-323221) is respectfully traversed.

The deficiency of the primary reference is described above. Takashi does not cure this deficiency and therefore the combined references cannot render the presently claimed invention obvious.

Takashi describes an aqueous ink containing a black pigment which is a self-dispersion type carbon black. To prepare such a self-dispersion carbon black, pigment carbon black is surface treated with various agents which react with the pigment to chemically attach a hydrophilic group to the pigment surface. The presence of such

hydrophilic groups eliminates the necessity for a conventional dispersing agent in the Takashi ink. Nowhere does this reference disclose, suggest or provide motivation to one of ordinary skill in the art which would lead to the cyan, yellow or magenta ink containing colorant that is at least one of a pigment and an aqueous dispersion of polymer fine particles comprising a colorant as presently claimed.

Accordingly, Applicants respectfully submit that the described deficiency of the primary reference cannot be cured by Takashi and therefore, the cited combination of references can neither anticipate nor render obvious the claimed invention. Withdrawal of the rejection of Claims 2-3, 11, 16-17 and 20 under 35 U.S.C. 103(a) over Ishibashi in view of Takashi is respectfully requested.

The rejection of Claims 4-10 and 18 under 35 U.S.C. 103(a) over Ishibashi in view of Takashi and further in view of Namba et al. (U.S. 2005/0054751) and Nagashima et al. (U.S. 2005/0170989) is respectfully traversed.

The cited combination of references neither discloses nor suggests the significant improvement in color saturation obtained with the cyan, yellow and magenta inks according to the claimed invention.

The deficiencies of the combination of Ishibashi and Takashi is described above. Namba is cited to show an aqueous dispersion of polymer fine particles and other items (2) to (8), while Nagashima is cited to show the fluorinated surfactant according to Formula (I) in an ink composition.

Namba describes an ink composition comprising a polymer emulsion of polymer fine particles containing coloring material, a first hydroxy compound, a second hydroxyl compound having 8 to 11 carbon atoms, a glycol ether having 8 to 11 carbon atoms, a water soluble organic solvent, at least one surfactant and at least one fluorine surfactant. Nowhere does this reference disclose 3-methyl-1,3-butanediol and nowhere is there a disclosure or

suggestion that color saturation would be improved in an ink composition as according to the claimed invention.

Applicants have shown that significant improvement in color saturation is obtained with the inks of the claimed invention and such improvement is not disclosed or suggested by the cited combination of references. Data supporting the significant improvement is presented in Table 3 of the specification. Table 3 is shown below for the Examiner's convenience.

Table 3

| | Yellow | Magenta | Cyan | Red | Green | Blue |
|--------------|--------|---------|-------|-------|-------|-------|
| Example 19 | 82.09 | 61.88 | 51.67 | 55.92 | 44.98 | 38.96 |
| Example 20 | 81.24 | 61.68 | 51.04 | 55.74 | 44.75 | 38.75 |
| Example 21 | 81.35 | 60.55 | 51.44 | 55.51 | 44.86 | 38.75 |
| Example 22 | 81.37 | 60.68 | 51.62 | 55.49 | 44.91 | 38.83 |
| Example 23 | 82.01 | 61.72 | 51.11 | 55.87 | 44.88 | 38.81 |
| Example 24 | 82.06 | 61.69 | 51.58 | 55.91 | 44.87 | 38.89 |
| Example 25 | 81.19 | 60.71 | 51.16 | 55.72 | 44.73 | 38.71 |
| Example 26 | 81.99 | 61.73 | 51.59 | 55.91 | 44.92 | 38.86 |
| Example 27 | 82.07 | 60.63 | 51.37 | 55.48 | 44.81 | 38.75 |
| Example 28 | 82.06 | 61.89 | 51.18 | 55.87 | 44.79 | 38.8 |
| Example 29 | 82.05 | 61.82 | 51.42 | 55.87 | 44.77 | 38.92 |
| Comp. Ex. 10 | 78.73 | 60.01 | 49.75 | 54.11 | 42.22 | 35.87 |
| Comp. Ex. 11 | 78.98 | 59.42 | 49.44 | 54.21 | 42.19 | 35.44 |
| Comp. Ex. 12 | 78.61 | 59.67 | 49.69 | 54.19 | 42.23 | 35.59 |
| Comp. Ex. 13 | 78.60 | 60.07 | 49.51 | 54.14 | 42.14 | 35.91 |

The experimental details are provided in the Examples in the specification and are only summarized in the following.

Inventive examples 19-29 are ink set combinations of cyan, yellow and magenta inks prepared according to the claimed invention. Comparative examples are ink sets prepared in a similar manner with the exception that 3-methyl-1,3-butanediol is replaced with 1,3-

butanediol or 1,5-pentanediol. Both 1,3-butanediol and 1,5-pentanediol are cited by Namba as a first hydroxy compound wetting agent.

The prepared inks of each set were printed, dried and then evaluated for color saturation using CIE color coordinates. As indicated in Table 3, in every color space the ink sets according to the invention provide a print image of higher color saturation. The improvement ranges from approximately 2 to 10 per cent. Nowhere does the cited combination of references disclose or suggest such improvement due to the ink composition according to the claimed invention.

In a Precedential Opinion rendered by the Board of Patent Appeals and Interferences in *Ex parte* Whalen II (Appeal 2007-4423, Application 10/281,142) on July 23, 2008, the Board stated:

“The KSR Court noted that obviousness cannot be proven merely by showing that the elements of a claimed device were known in the prior art; it must be shown that those of ordinary skill in the art would have had some “apparent reason to combine the known elements in the fashion claimed.””

“The Examiner has not persuasively explained why a person of ordinary skill in the art would have had a reason to modify the compositions taught by Evans, Greff⁷⁶⁷, or Taki in a way that would result in the compositions defined by the claims on appeal. Therefore, The Examiner has not made out a prima facie case of obviousness under 35 U.S.C. § 103.”

Applicants respectfully submit that: Ishibashi is directed to inks composed of water soluble dyes; Takashi is directed to a black ink composed of a specially treated self dispersing black pigment; Namba is directed to an ink composed of polymer fine particles containing a coloring material; and Nagashima is directed to a fluorine containing water-soluble nonionic surfactant. Furthermore, Applicants respectfully submit that nowhere in any of the cited references is there teaching or motivation provided that would lead one of ordinary skill in the art to the composition of the invention as claimed in Claim 1 and claims

dependent thereon. Moreover, nowhere in any of the cited references is there disclosure or suggestion of the significant improvement in performance obtained according to the claimed invention.

In consideration of the foregoing, Applicants respectfully submit that the cited combination of references can neither anticipate nor render obvious the claimed invention. Accordingly, withdrawal of the rejection of Claims 4-10 and 18 under 35 U.S.C. 103(a) over Ishibashi in view of Takashi and further in view of Namba et al. and Nagashima et al. is respectfully requested.

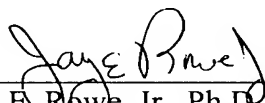
Applicants respectfully submit that the above-identified application is now in condition for allowance and early notice of such action is earnestly solicited.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.
Norman F. Oblon

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 08/07)



Jay E. Rowe, Jr., Ph.D.
Registration No. 58,948